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NOTICE OF ALLOWANCE AND FEE(S) DUE

41505   7590   02/06/2009

WOODCOCK WASHBURN LLP (MICROSOFT CORPORATION)
CIRA CENTRE, 12TH FLOOR
2929 ARCH STREET
PHILADELPHIA, PA 19104-2891

EXAMINER
CHEN, QING

ART UNIT	PAPER NUMBER
2191	

DATE MAILED: 02/06/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,302	03/01/2004	Michael David Marr	MSFT-3031/306162.01	9280

TITLE OF INVENTION: RUN-TIME CALL STACK VERIFICATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	05/06/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: <u>Mail</u> Mail Stop ISSUE FEE
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CIRA CENTRE, 12TH FLOOR
2929 ARCH STREET
PHILADELPHIA, PA 19104-2891

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____ (Depositor's name)

_____ (Signature)

_____ (Date)

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nonprovisional	NO	$1510	$300	$0	$1810	05/06/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHEN, QING	2191	717-121000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____   Date _____

Typed or printed name _____   Registration No. _____

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10/790,302	03/01/2004	Michael David Marr	MSFT-3031/306162.01	9280

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WOODCOCK WASHBURN LLP (MICROSOFT CORPORATION)	CHEN, QING
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2191	

2929 ARCH STREET
PHILADELPHIA, PA 19104-2891

DATE MAILED: 02/06/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 842 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 842 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

	Application No.	**Applicant(s)**
Notice of Allowability	10/790,302	MARR ET AL.
	Examiner	**Art Unit**	
	Qing Chen	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment filed on November 13, 2008*.

2. ☒ The allowed claim(s) is/are *1,2,5-14,16-18,21-23,26 and 27, renumbered as 1-20*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

      a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

          1. ☐ Certified copies of the priority documents have been received.

          2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

          3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the
              International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
      Paper No./Mail Date _____.

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of
   each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the
   attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08),
   Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
   of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),
   Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____.

DETAILED ACTION

1.   This Office action is in response to the amendment filed on November 13, 2008.

2.   **Claims 1, 2, 5-14, 16-18, 21-23, 26, and 27** are pending.

3.   **Claims 1, 2, 5-12, 18, and 26** have been amended.

4.   **Claims 3, 4, 15, 19, 20, 24, and 25** have been canceled.

5.   **Claim 27** has been added.

6.   **Claims 1, 2, 5-14, 16-18, 21-23, 26, and 27** are allowed, renumbered as 1-20.

7.   The objections to Claims 12-14, 16, and 17 are withdrawn in view of Examiner's amendments to the claims.

Examiner's Amendment

8.   An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

        Authorization for this Examiner's amendment was given in a telephone interview with Kenneth R. Eiferman (Reg. No. 51,647) on January 28, 2009.

        The application has been amended as follows:

AMENDMENTS TO THE CLAIMS

The amendment document filed on November 13, 2008 is considered non-compliant

because it has failed to meet the requirements of 37 CFR 1.121—namely, the status identifier for

Claim 23 is incorrect. In order for the amendment document to be compliant, please amend the

status identifier as follows:

On page 8 of the amendment document entitled "Amendments to the Claims," please

replace the status identifier for Claim 23, "Currently Amended," with the status identifier

"Previously Presented."

Please cancel Claim 24, add Claim 27, and amend Claims 1, 2, 7, 11, 12, 18, and 26 as

follows:

1. (Currently Amended) In a runtime environment comprising a first program module, at

least one second program module and a call stack, a method of invoking a desired method

associated with a desired second program module, comprising:

in a third program module associating each of a plurality of stubs respectively with each

of a plurality of methods associated with the at least one second program module, wherein each

stub comprises a code segment performing a unique non-standard calling convention into the at

least one second program module, wherein each stub includes at least a first instruction to push

function parameters onto the call stack, a second instruction to call an authenticator module for

authenticating that a stub has not been modified and a third instruction comprising embedded

unique data for the stub, wherein the embedded unique data comprises a vtable entry descriptor

for the desired method, corresponding to a vtable for the third program module, wherein the

vtable is covered and comprises a list of function pointers to functions associated with the <u>at least</u>

<u>one</u> second <u>program</u> module arranged in a random order, the random order unique for ~~each~~ <u>the at</u>

<u>least one</u> second <u>program</u> module; <u>and</u>

from the first program module, issuing a first call to a stub in the third program module

associated with the desired method, whereupon after the first call, the call stack comprises at

least a first parameter corresponding to a return address associated with the stub, a second

parameter corresponding to a parameter depth (cArgs) and a third parameter corresponding to a

return address of the first program module, the first, second and third parameters arranged in a

top-down order;

wherein the third program module calls the <u>at least one</u> second program module using a

non-standard calling convention.

2. (Currently Amended) The method of claim 1, wherein upon returning to the

authenticator module from ~~the~~ <u>a</u> jump to the vtable uncovering code, ~~the~~ <u>an</u> address associated

with the desired method on the ~~program~~ <u>call</u> stack automatically causes calling of the desired

method associated with the third <u>program</u> module and whereupon completion of the desired

method, the ~~second~~ return address <u>of the first program module</u> on the ~~program~~ <u>call</u> stack

automatically causes return to ~~the~~ <u>a</u> cleanup function, whereupon completion of the portion of

the authenticator <u>module</u> corresponding to the cleanup function, the ~~first~~ <u>return</u> address

associated with the ~~first program module~~ <u>stub</u> on the ~~program~~ call stack causes return to the first

program module.

7. (Currently Amended) The method of claim [[7]]1, wherein said authentication
comprises:

examining the call stack to identify a return address, and determining that the return
address is part of a program module that is permitted, according to a standard or rule, to invoke
functionality associated with the at least one second program module.

11. (Currently Amended) The method of claim 1, wherein said at least one second
program module comprises a dynamic-link library.

12. (Currently Amended) A method of verifying a context in which a first program
module has been called, the method comprising:

examining a call stack of a process in which said first program module executes to
identify a return address in which control of the process will return upon completion of a call to
said first program module;

determining that said return address is located within a second program module that is
permitted to call said first program module, said determining comprising checking a datum that
represents a calling code used by the second program module, the datum being derived from a
portion or the entirety of the second program module, the first program module being called by
the second program module via a third program module having one or more stubs with code
segments that are callable by the second program module as an intermediary, the one or more
stubs comprising data required during a verification by the first ~~software~~ program module, said
data required during said verification being mixed into instruction streams provided by the one or

more stubs, the data also comprising information that is used to identify a function that will be

invoked after the verification, wherein each stub comprises a code segment performing a unique

non-standard calling convention into the second program module, wherein each stub includes at

least a first instruction to push function parameters onto the call stack, a second instruction to

call an authenticator module for authenticating that a stub has not been modified and a third

instruction comprising embedded unique data for the stub, wherein the embedded unique data

comprises a vtable entry descriptor for ~~the~~ a desired method, corresponding to a vtable for the

third program module, wherein the vtable is covered and comprises a list of function pointers to

functions associated with the second program module arranged in a random order, the random

order unique for ~~each~~ the second program module;

        from the first program module, issuing a first call to a stub in the third program module
associated with the desired method, whereupon after the first call, the call stack comprises at
least a first parameter corresponding to a return address associated with the stub, a second
parameter corresponding to a parameter depth (cArgs) and a third parameter corresponding to a
return address of the first program module, the first, second and third parameters arranged in a
top-down order; and

        based on the result of said determining act, permitting execution of said first program

module to proceed and returning to said second ~~software~~ program module which issued the call

and bypassing said third ~~software~~ program module and the one or more stubs,

        wherein said first program module comprises cryptographic functionality that stores and

obscures a decryption key and that uses said decryption key to decrypt content.

18. (Currently Amended) A program module stored in a computer-readable storage medium comprising:

a function that is performable on behalf of a calling entity; and

logic that verifies an identity of the calling entity as a condition for performing said function, said logic consulting a call stack in order to identify said calling entity and determining said identity based on a return address on said call stack, said return address representing a location of an instruction to be executed when the program module completes execution, said logic checking a datum that represents a calling code used by the calling entity, the datum being derived from a portion or the entirety of the calling entity;

wherein said function is not exposed to said calling entity, and wherein said function is exposed to an intermediate entity that is callable by said calling entity, said intermediate entity calling upon the program module to perform said function on behalf of said calling entity, said intermediate entity comprising one or more stubs that comprise data required by the logic to verify the identity of the calling entity, the data being mixed into instruction streams provided by the one or more stubs, the data also comprising information that is used to identify the function, wherein each stub comprises a code segment performing a unique non-standard calling convention into the ~~second~~ program module, wherein each stub includes at least a first instruction to push function parameters onto the call stack, a second instruction to call an authenticator module for authenticating that a stub has not been modified and a third instruction comprising embedded unique data for the stub, wherein the embedded <u>unique</u> data comprises a vtable entry descriptor for ~~the~~ <u>a</u> desired method, corresponding to a vtable for the ~~third module~~ <u>intermediate entity</u>, wherein the vtable is covered and comprises a list of function pointers to

functions associated with the ~~second~~ program module arranged in a random order, the random

order unique for ~~each second~~ the program module;

from the calling entity, issuing a first call to a stub in the program module associated with

the desired method, whereupon after the first call, the call stack comprises at least a first

parameter corresponding to a return address associated with the stub, a second parameter

corresponding to a parameter depth (cArgs) and a third parameter corresponding to a return

address of the calling entity, the first, second and third parameters arranged in a top-down order;

and

wherein the program module upon completing said function bypasses the intermediate

entity and returns to the calling entity's return address.

24. (Canceled)

26. (Currently Amended) The method of claim 1, [[,]]whereupon executing the second

instruction in the stub, an authenticator module is called, the authenticator module:

verifying that the associated stub has not been modified utilizing the return address of the

associated stub;

if verification is not successful, not calling the second program module and terminating

execution; and

if verification is successful:

inserting a first return address of the first program module on the call ~~stock~~ stack;

replacing the ~~stub~~ return address <u>associated with the stub</u> on the call stack with an address associated with the desired method;

replacing the second parameter (cArgs) on the call stack with a second return address associated with the authenticator <u>module</u>, the second return address corresponding to a portion of the authenticator <u>module</u> for performing a cleanup function; <u>and</u>

causing a jump into vtable uncovering code associated with the vtable entry <u>descriptor</u>, causing execution of the desired method, automatically bypassing the authenticator module upon return and automatically calling the cleanup function, wherein the desired method authenticates the first program module using the return address of the first program module having been preserved on the call stack.

27. (New) A computer-readable storage medium having stored thereon computer-executable instructions for performing the steps of:

examining a call stack of a process in which said first program module executes to identify a return address in which control of the process will return upon completion of a call to said first program module;

determining that said return address is located within a second program module that is permitted to call said first program module, said determining comprising checking a datum that represents a calling code used by the second program module, the datum being derived from a portion or the entirety of the second program module, the first program module being called by the second program module via a third program module having one or more stubs with code segments that are callable by the second program module as an intermediary, the one or more

stubs comprising data required during a verification by the first program module, said data

required during said verification being mixed into instruction streams provided by the one or

more stubs, the data also comprising information that is used to identify a function that will be

invoked after the verification, wherein each stub comprises a code segment performing a unique

non-standard calling convention into the second program module, wherein each stub includes at

least a first instruction to push function parameters onto the call stack, a second instruction to

call an authenticator module for authenticating that a stub has not been modified and a third

instruction comprising embedded unique data for the stub, wherein the embedded unique data

comprises a vtable entry descriptor for a desired method, corresponding to a vtable for the third

program module, wherein the vtable is covered and comprises a list of function pointers to

functions associated with the second program module arranged in a random order, the random

order unique for the second program module;

      from the first program module, issuing a first call to a stub in the third program module

associated with the desired method, whereupon after the first call, the call stack comprises at

least a first parameter corresponding to a return address associated with the stub, a second

parameter corresponding to a parameter depth (cArgs) and a third parameter corresponding to a

return address of the first program module, the first, second and third parameters arranged in a

top-down order; and

      based on the result of said determining act, permitting execution of said first program

module to proceed and returning to said second program module which issued the call and

bypassing said third program module and the one or more stubs,

wherein said first program module comprises cryptographic functionality that stores and

obscures a decryption key and that uses said decryption key to decrypt content.

-- END OF AMENDMENT --

Reasons for Allowance

9.   The following is an Examiner's statement of reasons for allowance:

The cited prior art taken alone or in combination fail to teach, in combination with the

other claimed limitations, "wherein each stub includes at least a first instruction to push function

parameters onto the call stack, a second instruction to call an authenticator module for

authenticating that a stub has not been modified and a third instruction comprising embedded

unique data for the stub, wherein the embedded unique data comprises a vtable entry descriptor

for the desired method, corresponding to a vtable for the third program module, wherein the

vtable is covered and comprises a list of function pointers to functions associated with the at least

one second program module arranged in a random order, the random order unique for the at least

one second program module" and "from the first program module, issuing a first call to a stub in

the third program module associated with the desired method, whereupon after the first call, the

call stack comprises at least a first parameter corresponding to a return address associated with

the stub, a second parameter corresponding to a parameter depth (cArgs) and a third parameter

corresponding to a return address of the first program module, the first, second and third

parameters arranged in a top-down order" as recited in independent Claim 1; and further fail to

teach, in combination with the other claimed limitations, similarly-worded limitations recited in

independent Claims 12, 18, and 27.

The closest cited prior art, the combination of US 6,003,095 (hereinafter "Pekowski02"),

US 5,946,486 (hereinafter "Pekowski01"), and US 6,226,618 (hereinafter "Downs"), teaches an

apparatus and method for demand loading dynamic link libraries (DLLs) utilized in computer

programs. However, the combination of Pekowski02, Pekowski01, and Downs fails to teach

"wherein each stub includes at least a first instruction to push function parameters onto the call

stack, a second instruction to call an authenticator module for authenticating that a stub has not

been modified and a third instruction comprising embedded unique data for the stub, wherein the

embedded unique data comprises a vtable entry descriptor for the desired method, corresponding

to a vtable for the third program module, wherein the vtable is covered and comprises a list of

function pointers to functions associated with the at least one second program module arranged

in a random order, the random order unique for the at least one second program module" and

"from the first program module, issuing a first call to a stub in the third program module

associated with the desired method, whereupon after the first call, the call stack comprises at

least a first parameter corresponding to a return address associated with the stub, a second

parameter corresponding to a parameter depth (cArgs) and a third parameter corresponding to a

return address of the first program module, the first, second and third parameters arranged in a

top-down order" as recited in independent Claim 1; and further fails to teach similarly-worded

limitations recited in independent Claims 12, 18, and 27.

Any comments considered necessary by Applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Conclusion

10.   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The

Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM.

The Examiner can also be reached on alternate Fridays.

        If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

        Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

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/Q. C./

Examiner, Art Unit 2191

/Wei Y Zhen/

Supervisory Patent Examiner, Art Unit 2191